CONTENTS

NUMBERS 1 AND 2, JANUARY-FEBRUARY-MARCH-APRIL, 1938

Purpose of the Food Technology Conference. Samuel C. Prescott 1
Recent Developments in Canning Fruit Juices. S. Henry Ayers 5
Advancement in Sterilization Methods for Canned Foods. C. O. Ball 13
Action of Enzymes at Low Temperatures. A. K. Balls and Hans Lineweaver 57
Modern Practice in Fish Preservation by Cold. Louis Berube 69
Color of Meat. J. Brooks 75
Importance of the Unit Operation Concept in Food Engineering. L. V. Burton 79
Recent Developments in Canning Technology with Reference to Spoilage Control. E. J. Cameron 91
Present Use and Future Prospects of Ozone in Food Storage. Arthur W. Ewell 101
Carotene and Ascorbic Acid Content of Fresh Market and Commercially Frozen Fruits and Vegetables. G. A. Fitzgerald and C. R. Fellers 109
Spectroscopy in Food Research. George R. Harrison 121
Air-Conditioning for Food Plants. James Holt 127
Vitamin C Content of Vegetables. VIII. Frozen Peas. R. R. Jenkins, D. K. Tressler, and G. A. Fitzgerald 133
Application of Scientific Control in the Bottling Industry. Max Levine 141
Gas Storage of Meat and Eggs. T. Moran 149
Calorimetric Investigation of Foodstuffs. A. Perlick 155
Cristallisation et Dessiccation de Certains Proteides sous l'Action du Froid. Maurice Piettre 161
Essais de "Quick Freezing" Applique aux Grosses Pieces de Viande. Maurice Piettre 167
Contribution to the Theory of Cold Injury to Fruit. R. Plank 175
Microbiology in Relation to Food Preservation. Samuel C. Prescott and Fred W. Tanner 189
Determination of Optimum Conditions for Domestic Refrigeration of Foods. Bernard E. Proctor and David G. Greenlie 199
Freezing and Cold Storage of Herring. George A. Reay 205
Some Recent Advances in Dairy Technology. James A. Tobey 211
Apparatus for Measurements of Chewing Resistance or Tenderness of Foodstuffs. N. N. Volodkevich 221
Disposal of Food-Plant Wastes. L. F. Warrick 227
Utilization of Whey in Foods. B. H. Webb 233

ABSTRACTS

Packaging Materials and Their Application to the Food Industry. Allen Abrams 239
Food Preservation in Modern Glass Containers. H. A. Barnby 240
Present Trends in Canning. A. W. Bitting 242
Current Technological Problems in the Dairy and Ice Cream Industries. A. C. Fay 245
Development of a Fiber Container for Fluid Milk. F. F. Fitzgerald 248
Research Problems of the Can Manufacturer. William H. Harrison 253
Engineering of Pasteurization. C. A. Holmquist and W. D. Tiedeman 257
Problems Yet to Be Solved in the Dairy Industry. H. F. Judkins 259

Technological Exploration of the Art of Buttermaking. M. E. Parker..... 261
Canning of Cheddar Cheese. L. A. Rogers..... 267
Recent Advances in Brewing Technology. George B. Sippel..... 269
Special Problems in Fish Canning. M. P. Vucassovich..... 273
Better Meals for Tomorrow. Lewis W. Waters..... 276
Research in Metallurgy and Its Significance in Canning. Robert S. Williams.. 278

NUMBER 3, MAY-JUNE, 1938

Stability of Vitamin D in Irradiated Evaporated Milk. C. H. Krieger and H. T. Scott..... 283
A Study of Comparative Methods and Media Used in Microbiological Examination of Creamery Butter. G. W. Shadwick, Jr..... 287
Types of Bacteria Surviving in Frozen-Pack Vegetables. A. G. Lochhead and A. H. Jones..... 299
Changes in Iron Content of Musts and Wines During Vinification. E. M. Mrak and J. F. Fessler..... 307
Vitamin C Content of Vegetables. IX. Influence of Method of Cooking on Vitamin C Content of Cabbage. Marylizabeth Wellington and Donald K. Tressler..... 311
Lactic Acid-Producing Bacteria in Fermentations and Food Spoilage. Carl S. Pederson..... 317
Heat-Resistance Studies on Spores of Putrefactive Anaerobes in Relation to Determination of Safe Processes for Canned Foods. C. T. Townsend, J. R. Esty, and F. C. Baselt..... 323
Salmonella Food Poisoning—Infection or Intoxication? G. M. Dack and Ellen Davison..... 347
A Study of Certain Reducing Substances in Citrus Fruits. James B. DeWitt and Barnett Sure..... 351
Iodine Content of Some Ohio Vegetables. Carl Dietz..... 359

NUMBER 4, JULY-AUGUST, 1938

Stability of Vitamin B_1 of Vacuum-Dried Animal Tissues During Storage. Aaron Arnold and C. A. Elvehjem..... 367
The Antirachitic Effect of Some Foods. E. F. Kohman, W. H. Eddy, Mary E. White, and N. H. Sanborn..... 373
A Note on the Bioassay Technique for Determining Available Iron in Foods. Philip L. Harris and George L. Poland..... 383
Bactericidal Activity of Crotonaldehyde. R. L. Ingersoll, R. E. Vollrath, Bernard Scott, and C. C. Lindegren..... 389
Acid-Base Balance of Cereals and Some Related Food Materials. Jehiel Davidson and J. A. LeClerc..... 393
Losses of Vitamin C During Boiling and Steaming of Carrots. Faith Fenton, D. K. Tressler, S. C. Camp, and C. G. King..... 403
Losses of Vitamin C During Commercial Freezing, Defrosting, and Cooking of Frosted Peas. Faith Fenton and D. K. Tressler..... 409
Isolation of Halophilic Bacteria from Soil, Water, and Dung. L. S. Stuart.... 417
Detecting Thermophilic Contamination in Skim-Milk Powder. C. M. Sorenson 421
Color in California Wines. I. Methods for Measurement of Color. A. J. Winkler and M. A. Amerine..... 429

Color in California Wines. II. Preliminary Comparisons of Certain Factors Influencing Color. A. J. Winkler and M. A. Amerine..... 439

NUMBER 5, SEPTEMBER-OCTOBER, 1938

Sources of Lead in Maple Syrup and a Method for Its Removal. C. O. Willits and C. J. Tressler, Jr..... 449
Further Observations on Production of Alcohol by *Saccharomyces ellipsoideus* in Syruped Fermentations. Leonora Hohl..... 453
Preservation of Grape Juice. V. Pasteurization of Grape and Apple Juices for Storage or Immediate Fermentation. E. Arthur Beavens, Harry E. Goresline, and Carl S. Pederson..... 467
Pectic Enzymes. II. Pectic Enzymes of Tomatoes. Z. I. Kertesz..... 481
Vitamin Values of Garden-Type Peas Preserved by Frozen-Pack Method. I. Ascorbic Acid (Vitamin C). E. N. Todhunter and B. L. Sparling..... 489
Improved Procedures in Determination of Aldehydes in Distilled Alcoholic Liquors with Schiff's Reagent. Walter C. Tobie..... 499
Variations in Sampling Beef and Pork Roasts for Press-Fluid Investigations. Alice M. Child and Elsie Zohner Moyer..... 505
Adhesion of Potato-Tuber Cells as Influenced by Temperature. Catherine J. Personius and Paul F. Sharp..... 513
Permeability of Potato-Tuber Tissue as Influenced by Heat. Catherine J. Personius and Paul F. Sharp..... 525
Degree of Pigmentation and Its Probable Relationship to the Diastatic Activity of Honey. H. A. Schuette and Janet F. Pearlstein..... 539
Mineral Constituents of Honey. III. Sulphur and Chlorine. H. A. Schuette and Ralph E. Triller..... 543
Nutritive Value for Growth of Some Proteins of Fishery Products. William B. Lanham, Jr., and James M. Lemon..... 549

NUMBER 6, NOVEMBER-DECEMBER, 1938

Action of Gum Guaiacum upon the Animal Organism. Victor Johnson, Anton J. Carlson, Nathanial Kleitman, and Paul Bergstrom..... 555
Utilization of Calcium of Spinach and Kale. M. L. Fincke and E. A. Garrison..... 575
Development of Pink Color in Sauerkraut. Carl S. Pederson and C. D. Kelly.. 583
A Study of Rate of Decomposition of Haddock Muscle at Various Temperatures as Indicated by Ammonia Content. G. Chapman Crooks and W. S. Ritchie..... 589
Storage of Shell Eggs. T. L. Swenson..... 599
Inhibitory Properties of Horse-Radish Vapors. Milton J. Foter and Ann M. Golick..... 609
A Note on Yeast Obtained from Slimy Sausage. E. M. Mrak and Lee Bonar.. 615
Effect of Coagulation on Press Fluid, Shear Force, Muscle-Cell Diameter, and Composition of Beef Muscle. Mary J. Satorius and Alice M. Child..... 619
Problems in Meat Research. I. Four Comparable Cuts from One Animal. II. Reliability of Judges' Scores. Mary J. Satorius and Alice M. Child.. 627
Preparation of Ice Cream Mixes for Home Consumption. W. J. Corbett and P. H. Tracy..... 637

Thermal Processing of Canned Foods in Tin Containers. I. Variation of Heating Rate with Can Size for Products Heating by Convection. O. T. Schultz and F. C. W. Olson 647
Chemical and Bacteriological Studies on Ice Cream. Cecily Ruth Grumbine and Evelyn G. Halliday 653

INDEX TO VOLUME 3

Abrams, Allen. Packaging materials and their application to the food industry 239
Acid-base balance of cereals 393
Action of enzymes at low temperatures 57
Action of guaiacum 555
Adhesion of potato-tuber cells 513
Air conditioning in food plants 127
Alcohol production by *Saccharomyces ellipsoideus* 453
Alcoholic liquors, aldehyde in 499
Amerine, M. A., and Winkler, A. J. Color in California wines. I. Methods for measurement of color 429
———, and ———. Color in California wines. II. Preliminary comparison of certain factors influencing color 439
Ammonia in decomposed haddock 589
Antirachitic effect of some foods 373
Apparatus for tenderness 221
Apple juice, preservation 467
Arnold, Aaron, and Elvehjem, C. A. Stability of vitamin B_1 of vacuum-dried animal tissues during storage 367
Art of buttermaking 261
Ascorbic acid in frozen foods 109
Ascorbic acid in frozen peas 489
Assay of foods for iron 383
Available iron in foods 383
Ayers, S. Henry. Recent developments in canning fruit juices 5
Bacteria in frozen vegetables 299
Bactericidal activity of crotonaldehyde 389
Bacteriological examination of ice cream 653
Bacteriology of processing 21
Ball, C. O. Advancement in sterilization methods for canned foods 13
Balls, A. K., and Lineweaver, Hans. Action of enzymes at low temperatures 57
Barnby, H. A., Food preservation in modern glass containers 240
Baselt, F. C., Townsend, C. T., and Esty, J. R. Heat-resistance studies on spores of putrefactive anaerobes in relation to determination of safe processes for canned foods 323
Beavens, E. Arthur, Goresline, Harry E., and Pederson, Carl S. Preservation of grape juice. V. Pasteurization of grape and apple juices for storage or immediate fermentation 467
Beef muscle 619
Beef, sampling 505
Bergstrom, Paul, Johnson, Victor, Carlson, Anton J., and Kleitman, Nathanial. Action of gum guaiacum upon the animal organism 555
Berube, Louis. Modern practice in fish preservation by cold 69
Better meals for tomorrow 276
Bioassay of foods for iron 383
Bitting, A. W. Present trends in canning 242
Boiling, effect on vitamin C in carrots 403
Bonar, Lee, and Mrak, E. M. A note on yeast obtained from slimy sausage 615
Bottling industry, scientific control 141

Brewing technology 269
Brooks, J. Color of meat 75
Burton, L. V. Importance of the unit operation concept in food engineering 79
Buttermaking, art of 261
Cabbage, vitamin C in cooked 311
California wines, color in 429, 439
Cameron, E. J. Recent developments in canning technology with reference to spoilage control 91
Camp, S. C., King, C. G., Fenton, Faith, and Tressler, D. K. Losses of vitamin C during boiling and steaming of carrots 403
Can size and heating rate 647
Can manufacture 253
Canned foods, processing 647
———, safe processes 323
Canned food sterilization 13
Canning cheddar cheese 267
Canning fruit juices 5
Canning, metallurgy in 278
Canning of fish 273
Canning technology in spoilage control 91
Canning, trends in 242
Carlson, Anton J., Kleitman, Nathanial, Bergstrom, Paul, and Johnson, Victor. Action of gum guaiacum upon the animal organism 555
Carotene content of frozen foods 109
Carrots, effect of cooking on vitamins in 403
Cereals, acid-base balance 393
Cheddar cheese canning 267
Cheese canning 267
Chemical examination of ice cream 653
Chewing resistance of foodstuffs 221
Child, Alice M., and Moyer, Elsie Zohner. Variations in sampling beef and pork roasts for press-fluid investigations 505
———, and Satorius, Mary J. Effect of coagulation on press fluid, shear force, muscle-cell diameter, and composition of beef muscle 619
———, and ———. Problems in meat research. I. Four comparable cuts from one animal. II. Reliability of judges' scores 627
Chlorine in honey 543
Citrus fruits, reducing substances 351
Cold, effect on proteins 161
Cold, fish preservation 69
Cold injury of fruits 175
Cold storage of herring 205
Color in California wines 429
Color of meat 75
Colorimetric investigation of foods 155
Commercial freezing, effect on vitamin C 409
Conference, food technology 1
Convection 647
Cooking, effect on vitamin C in carrots 403
———, effect on vitamin C in peas 409
———, effect on vitamin C in vegetables 311

Corbett, W. J., and Tracy, P. H. Preparation of ice cream mixes for home consumption 637
Creamery butter, microbiological examination of..... 287
Crooks, G. Chapman, and Ritchie, W. S. A study of rate of decomposition of haddock muscle at various temperatures as indicated by ammonia content 589
Crotonaldehyde, bactericidal activity..... 389
Crystallization of proteins..... 161
Dack, G. M., and Davison, Ellen. Salmonella food poisoning—infection or intoxication? 347
Dairy industry problems 259
Dairy industry technology..... 245
Dairy technology..... 211
Davidson, Jehiel, and LeClerc, J. A. Acid-base balance of cereals and some related food materials..... 393
Davison, Ellen, and Dack, G. M. Salmonella food poisoning—Infection or intoxication? 347
Decomposition of haddock..... 589
Defrosting, effect on vitamin C in peas..... 409
Dessication of proteins..... 161
Detection of thermophilic bacteria in skim-milk powder..... 421
Development of pink color in sauerkraut..... 583
DeWitt, James B., and Sure, Barnett. A study of certain reducing substances in citrus fruits..... 351
Diastatic activity of honey..... 539
Dietz, Carl. Iodine content of some Ohio vegetables..... 359
Disposal of food-plant wastes..... 227
Domestic refrigeration of foods..... 199
Dung, halophilic bacteria in..... 417
Eddy, W. H., White, Mary E., Sanborn, N. H., and Kohman, E. F. The antirachitic effect of some foods..... 373
Effect of cooking vegetables on vitamin C in..... 311
Eggs, gas storage..... 149
Eggs, shell, storage of..... 599
Elvehjem, C. A., and Arnold, Aaron. Stability of vitamin B_1 of vacuum-dried animal tissues during storage..... 367
Engineering of pasteurization..... 257
Enzymes, action at low temperatures..... 57
Esty, J. R., Baselt, F. C., and Townsend, C. T. Heat-resistance studies on spores of putrefactive anaerobes in relation to determination of safe processes for canned foods..... 323
Evaporated milk 283
Evaporated milk, vitamin D in..... 283
Ewell, Arthur W. Present use and future prospects of ozone in food storage.... 101
Examination, microbial, butter..... 287
Fay, A. C. Current technological problems in the dairy and ice cream industries 245
Fellers, C. R., and Fitzgerald, G. A. Carotene and ascorbic acid content of fresh market and commercially frozen fruits and vegetables..... 109
Fenton, Faith, and Tressler, D. K. Losses of vitamin C during commercial freezing, defrosting, and cooking of frosted peas..... 409
———, ———, Camp S. C., and King, C. G. Losses of vitamin C during boiling and steaming of carrots..... 403

Fessler, J. F., and Mrak, E. M. Changes in iron content of musts and wines during vinification 307
Fermentation, lactic acid bacteria in 317
Fiber container for fluid milk 248
Fiber milk container 248
Fincke, M. L., and Garrison, E. A. Utilization of calcium of spinach and kale 575
Fish canning 273
Fish preservation by cold 69
Fishery products, proteins 549
Fitzgerald, F. F. Development of a fiber container for fluid milk 248
Fitzgerald, G. A., and Fellers, C. R. Carotene and ascorbic acid content of fresh market and commercially frozen fruits and vegetables 109
———, Jenkins, R. R., and Tressler, D. K. Vitamin C content of vegetables. VIII. Frozen peas 133
Food engineering, unit operation 79
Food-plant wastes 227
Food plants, air conditioning 127
Food poisoning, salmonella 347
Food preservation, glass containers 240
———, microbiology 189
Food research, spectroscopy in 121
Food spoilage, lactic acid bacteria in 317
Food storage and ozone 101
Food technology conference 1
Foods, antirachitic effect 373
———, calorimetric investigation 155
———, iron in 383
———, refrigeration domestic 199
Foodstuffs, tenderness 221
Foter, Milton J., and Golick, Ann M. Inhibitory properties of horse-radish vapors 609
Freezing, effect on vitamin C in peas 409
Freezing of herring 205
Frozen foods, carotene content 109
Frozen peas, vitamin C content of 133, 409
———, vitamins in 489
Frozen vegetables, bacteria in 299
Fruit, cold injury 175
Fruit juices, canning 5
Fruits, frozen, ascorbic acid in 109
———, frozen, carotene content of 109
Garrison, E. A., and Fincke, M. L. Utilization of calcium of spinach and kale 575
Gas storage, meat and eggs 149
Glass containers 240
Golick, Ann M., and Foter, Milton J. Inhibitory properties of horse-radish vapors 609
Goresline, Harry E., Pederson, Carl S., and Beavens, E. Arthur. Preservation of grape juice. V. Pasteurization of grape and apple juices for storage or immediate fermentation 467
Grape juice, pasteurization 467

Greenlie, David G., and Proctor, Bernard E. Determination of optimum conditions for domestic refrigeration of foods 199
Grumbine, Cecily Ruth, and Halliday, Evelyn G. Chemical and bacteriological studies on ice cream 653
Guaiacum, action of 555
Haddock muscle, rate of decomposition 589
Halliday, Evelyn G., and Grumbine, Cecily Ruth. Chemical and bacteriological studies on ice cream 653
Halophilic bacteria, isolation of 417
Harris, Philip L., and Poland, George L. A note on the bioassay technique for determining available iron in foods 383
Harrison, George R. Spectroscopy in food research 121
Harrison, William H. Research problems of the can manufacturer 253
Heat penetration 19
Heat penetration in tin cans 647
Heat permeability of potato 525
Heat resistance studies on spores 323
Herring, freezing of 205
High-short sterilization 28
Hohl, Leonora. Further observations on production of alcohol by *Saccharomyces ellipsoideus* in syruped fermentations 453
Holmquist, C. A., and Tiedeman, W. D. Engineering of pasteurization 257
Holt, James. Air-conditioning for food plants 127
Honey, chlorine and sulfur in 543
———, pigmentation 539
Horse-radish vapors 609
Ice cream 653
Ice cream mixes 637
Infection in salmonella food illness 347
Ingersoll, R. L., Vollrath, R. E., Scott, Bernard, and Lindegren, C. C. Bactericidal activity of crotonaldehyde 389
Inhibitory properties of horse-radish vapors 609
Intoxication in Salmonella food poisoning 347
Iodine content of vegetables 359
Iron content of musts 307
Iron in foods, assay of 383
Irradiated evaporated milk 283
Isolation of halophilic bacteria 417
Jenkins, R. R., Tressler, D. K., and Fitzgerald, G. A. Vitamin C content of vegetables. VIII. Frozen peas 133
Jones, A. H., and Lochhead, A. G. Types of bacteria surviving in frozen-pack vegetables 299
Johnson, Victor, Carlson, Anton J., Kleitman, Nathanial, and Bergstrom, Paul. Action of gum guaiacum upon the animal organism 555
Judkins, H. F. Problems yet to be solved in the dairy industry 259
Kale, utilization of calcium of 575
Kelly, C. D., and Pederson, Carl S. Development of pink color in sauerkraut .. 583
Kertesz, Z. I. Pectic enzymes. II. Pectic enzymes of tomatoes 481
King, C. G., Fenton, Faith, Tressler, D. K., and Camp, S. C. Losses of vitamin C during boiling and steaming of carrots 403
Kleitman, Nathanial, Bergstrom, Paul, Johnson, Victor, and Carlson, Anton J. Action of gum guaiacum upon the animal organism 555

Kohman, E. F., Eddy, W. H., White, Mary E., and Sanborn, N. H. The antirachitic effect of some foods 373
Krieger, C. H., and Scott, H. T. Stability of vitamin D in irradiated evaporated milk 283
Lactic acid bacteria in food spoilage 317
Lanham, William B., Jr., and Lemon, James M. Nutritive value for growth of some proteins of fishery products 549
Lead in maple syrup 449
LeClerc, J. A., and Davidson, Jehiel. Acid-base balance of cereals and some related food materials 393
Lemon, James M., and Lanham, William B., Jr. Nutritive value for growth of some proteins of fishery products 549
Levine, Max. Application of scientific control in the bottling industry 141
Lindegren, C. C., Ingersoll, R. L. Vollrath, R. E., and Scott, Bernard. Bactericidal activity of crotonaldehyde 389
Lineweaver, Hans, and Balls, A. K. Action of enzymes at low temperatures 57
Liquors, aldehydes in 499
Lochhead, A. G., and Jones, A. H. Types of bacteria surviving in frozen-pack vegetables 299
Losses of vitamin C during cooking 403
Losses of vitamin C in frosted peas 409
Low temperatures, enzyme action 57
Maple syrup, lead in 449
Massachusetts Institute of Technology conference 1
Measurement of color in wines 429, 439
Meat, color of 75
———, gas storage 149
———, quick freezing 167
Meat research 627
Metallurgy and canning 278
Microbiological examination of creamery butter 287
Microbiology of food preservation 189
Milk container, paper 248
Milk-whey in foods 233
Mixes, ice cream 637
Molds in creamery butter 287
Moran, T. Gas storage of meat and eggs 149
Moyer, Elsie Zohner, and Child, Alice M. Variations in sampling beef and pork roasts for press-fluid investigations 505
Mrak, E. M., and Bonar, Lee. A note on yeast obtained from slimy sausage 615
———, and Fessler, J. F. Changes in iron content of musts and wines during vinification 307
Muscle, beef 619
Musts, iron in 307
Note on yeast from sausage 615
Nutritive value of fish proteins 549
Olson, F. C. W., and Schultz, O. T. Thermal processing of canned foods in tin containers. I. Variation of heating rate with can size for products heating by convection 647
Ozone in food storage 101
Packing materials in food industry 239
Paper milk container 248

Paper wrappings 239
Parker, M. E. Technological exploration of the art of buttermaking..... 261
Pasteurization, engineering 257
Pasteurization of grape juice..... 467
Pork, sampling 505
Pearlstein, Janet F., and Schuette, H. A. Degree of pigmentation and its probable relationship to the diastatic activity of honey..... 539
Peas, frozen, vitamins in..... 489
Pectic enzymes of tomatoes..... 481
Pederson, Carl S. Lactic acid-producing bacteria in fermentations and food spoilage 317
———, Beavens, E. Arthur, and Goresline, Harry E. Preservation of grape juice. V. Pasteurization of grape and apple juices for storage or immediate fermentation 467
———, and Kelly, C. D. Development of pink color in sauerkraut..... 583
Perlick, A. Calorimetric investigation of foodstuffs..... 155
Personius, Catherine J., and Sharp, Paul F. Adhesion of potato-tuber cells as influenced by temperature..... 513
———, and ———. Permeability of potato-tuber tissue as influenced by heat 525
Pigmentation of honey..... 539
Piettre, Maurice. Cristallisation et dessiccation de certain proteides sous l'action du froid..... 161
———. Essais de "quick freezing" applique aux grosses pieces de viande..... 167
Pink color of sauerkraut..... 583
Plank, R. Contribution to the theory of cold injury to fruit..... 175
Poland, George L., and Harris, Philip L. A note on the bioassay technique for determining available iron in foods..... 383
Potato-tuber cells, adhesion..... 513
Prescott, Samuel C. Purpose of the food technology conference..... 1
———, and Tanner, Fred W. Microbiology in relation to food preservation.... 189
Present trends in canning..... 242
Preservation of fish by cold..... 69
Preservation of grape juice..... 467
Problems in meat research..... 627
Processes, safe 323
Processing canned foods.....17, 647
Proctor, Bernard E., and Greenlie, David G. Determination of optimum conditions for domestic refrigeration of foods..... 199
Proteins, crystallization and dessication..... 161
Quick freezing of meats..... 167
Reay, George A. Freezing and cold storage of herring..... 205
Reducing substances in citrus fruits..... 351
Refrigeration of foods..... 199
Research in can manufacture..... 253
Ritchie, W. S., and Crooks, G. Chapman. A study of rate of decomposition of haddock muscle at various temperatures as indicated by ammonia content 589
Rogers, L. A. Canning of cheddar cheese..... 267
Saccharomyces ellipsoideus, alcohol production by..... 453
Safe processes for canned foods..... 323
Salmonella food poisoning..... 347
Sampling beef and pork..... 505

Sanborn, N. H., Kohman, E. F., Eddy, W. H., and White, Mary E. The antirachitic effect of some foods 373
Satorius, Mary J., and Child, Alice M. Effect of coagulation on press fluid, shear force, muscle-cell diameter, and composition of beef muscle 619
———, and ———. Problems in meat research. I. Four comparable cuts from one animal. II. Reliability of judges' scores 627
Sauerkraut, pink color 583
Sausage, slimy, yeast from 615
Schuette, H. A., and Pearlstein, Janet F. Degree of pigmentation and its probable relationship to the diastatic activity of honey 539
———, and Triller, Ralph E. Mineral constituents of honey. III. Sulphur and chlorine 543
Schultz, O. T., and Olson, F. C. W. Thermal processing of canned foods in tin containers. I. Variation of heating rate with can size for products heating by convection 647
Scientific control in bottling industry 141
Scores of meat 627
Scott, Bernard, Lindegren, C. C., Ingersoll, R. L., and Vollrath, R. E. Bactericidal activity of crotonaldehyde 389
Scott, H. T., and Krieger, C. H. Stability of vitamin D in irradiated evaporated milk 283
Shadwick, G. W., Jr. A study of comparative methods and media used in microbiological examination of creamery butter 287
Sharp, Paul F., and Personius, Catherine J. Adhesion of potato-tuber cells as influenced by temperature 513
———, and ———. Permeability of potato-tuber tissue as influenced by heat 525
Shell eggs, storage 599
Sippel, George B. Recent advances in brewing technology 269
Skim-milk powder, thermophilic bacteria in 421
Slimy sausage, yeast from 615
Soil, halophilic bacteria in 417
Sorenson, C. M. Detecting thermophilic contamination in skim-milk powder 421
Sparling, B. L., and Todhunter, E. N. Vitamin values of garden-type peas preserved by frozen-pack method. I. Ascorbic acid (vitamin C) 489
Spectroscopy in food research 121
Spinach, calcium utilization of 575
Spoilage control and canning technology 91
Spores, heat resistance 323
Stability of vitamin B_1 367
Stability of vitamin D in evaporated milk 283
Steaming, effect on vitamin C in carrots 403
Sterilization of canned foods 13
Stero-vac process 6
Storage of shell eggs 599
Stuart, L. S. Isolation of halophilic bacteria from soil, water, and dung 417
Sulfur in honey 543
Sure, Barnett, and DeWitt, James B. A study of certain reducing substances in citrus fruits 351
Swenson, T. L. Storage of shell eggs 599
Tanner, Fred W., and Prescott, Samuel C. Microbiology in relation to food preservation 189

Technology in ice cream industry 245
Technology of brewing 269
Technology of buttermaking 261
Tenderness of foodstuffs 221
Theory of cold injury of fruit 175
Thermal processing of canned foods 647
Thermophilic bacteria in skim-milk powder 421
Tin can manufacture 253
Tin cans, processing 647
Tobey, James A. Some recent advances in dairy technology 211
Tobie, Walter C. Improved procedures in determination of aldehydes in distilled alcoholic liquors with Schiff's reagent 499
Todhunter, E. N., and Sparling, B. L. Vitamin values of garden-type peas preserved by frozen-pack method. I. Ascorbic acid (vitamin C) 489
Tomatoes, pectic enzymes in 481
Townsend, C. T., Esty, J. R., and Baselt, F. C. Heat-resistance studies on spores of putrefactive anaerobes in relation to determination of safe processes for canned foods 323
Tracy, P. H., and Corbett, W. J. Preparation of ice cream mixes for home consumption 637
Trends in canning 242
Tressler, C. J., Jr., and Willits, C. O. Sources of lead in maple syrup and a method for its removal 449
Tressler, D. K., Camp, S. C., King, C. G., and Fenton, Faith. Losses of vitamin C during boiling and steaming of carrots 403
———, and Fenton, Faith. Losses of vitamin C during commercial freezing, defrosting, and cooking of frosted peas 409
———, Fitzgerald, G. A., and Jenkins, R. R. Vitamin C content of vegetables. VIII. Frozen peas 133
Tressler, Donald K., and Wellington, Marylizabeth. Vitamin C content of vegetables. IX. Influence of method of cooking on vitamin C content of cabbage 311
Triller, Ralph E., and Schuette, H. A. Mineral constituents of honey. III. Sulphur and chlorine 543
Types of bacteria in frozen vegetables 299
Unit operation in food engineering 79
Utilization of calcium of spinach 575
Utilization of whey in foods 233
Vacuum-dried animal tissues 367
Variations in meat samples 505
Vegetables, frozen, ascorbic acid in 109
———, frozen, carotene content of 109
———, iodine in 359
———, frozen, vitamin C in 133
Vitamin B_1, stability 367
Vitamin C in frozen peas 133
Vitamin C in vegetables 311
Vitamin C losses in cooking carrots 403
Vitamin C losses in frosted peas 409
Vitamin D in evaporated milk 283
Vitamins in frozen peas 489

Vollrath, R. E., Scott, Bernard, Lindegren, C. C., and Ingersoll, R. L. Bactericidal activity of crotonaldehyde 389
Volodkevich, N. N. Apparatus for measurements of chewing resistance or tenderness of foodstuffs 221
Vucassovich, M. P. Special problems in fish canning 273
Warrick, L. F. Disposal of food-plant wastes 227
Water, halophilic bacteria in 417
Waters, Lewis W. Better meals for tomorrow 276
Webb, B. H. Utilization of whey in foods 233
Wellington, Marylizabeth, and Tressler, Donald K. Vitamin C content of vegetables. IX. Influence of method of cooking on vitamin C content of cabbage 311
Whey in foods 233
White, Mary E., Sanborn, N. H., Kohman, E. F., and Eddy, W. H. The antirachitic effect of some foods 373
Williams, Robert S. Research in metallurgy and its significance in canning 278
Willits, C. O., and Tressler, C. J., Jr. Sources of lead in maple syrup and a method for its removal 449
Wine, iron in 307
———, color in 429, 439
Winkler, A. J., and Amerine, M. A. Color in California wines. I. Methods for measurement of color 429
———, and ———. Color in California wines. II. Preliminary comparisons of certain factors influencing color 439
Wrapping, paper 239
Yeast from slimy sausage 615
Yeasts in creamery butter 287

Thermal Processing of Canned Foods in Tin Containers. I. Variation of Heating Rate with Can Size for Products Heating by Convection. O. T. Schultz and F. C. W. Olson..... 647
Chemical and Bacteriological Studies on Ice Cream. Cecily Ruth Grumbine and Evelyn G. Halliday..... 653